NICE National Institute for Health and Care Excellence

NICE Pathways

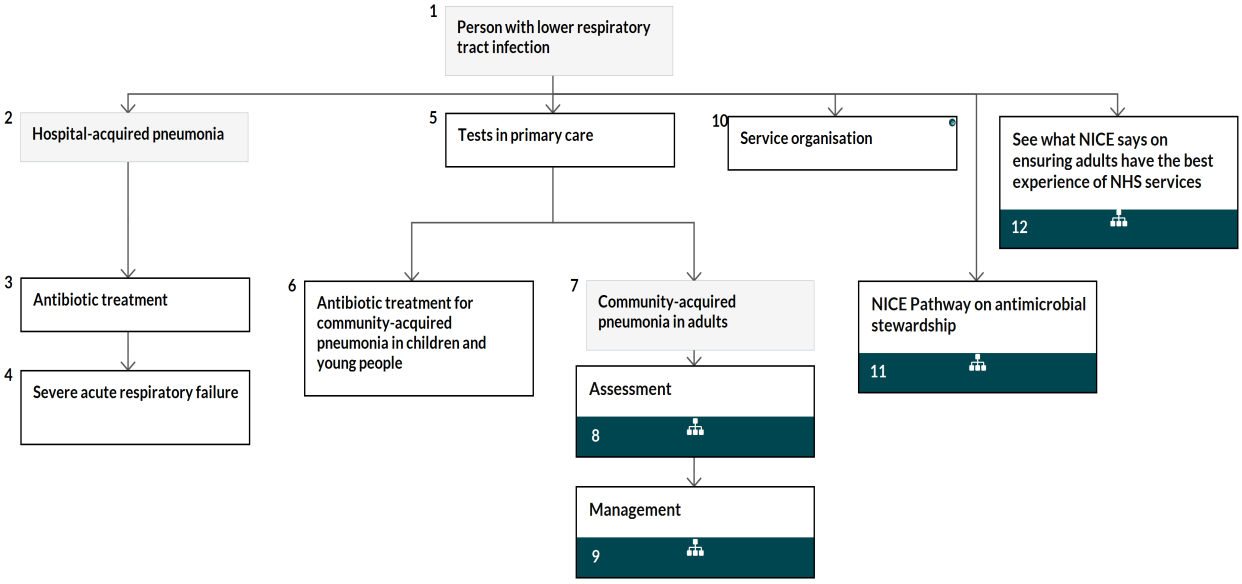
Pneumonia overview

NICE Pathways bring together everything NICE says on a topic in an interactive flowchart. NICE Pathways are interactive and designed to be used online.

They are updated regularly as new NICE guidance is published. To view the latest version of this NICE Pathway see:

http://pathways.nice.org.uk/pathways/pneumonia
NICE Pathway last updated: 16 September 2019

This document contains a single flowchart and uses numbering to link the boxes to the associated recommendations.



1 Person with lower respiratory tract infection

No additional information

2 Hospital-acquired pneumonia

No additional information

3 Antibiotic treatment for hospital-acquired pneumonia

Please note that the recommendations below apply to adults, young people and children aged 72 hours and over.

For adults, young people and children with symptoms or signs of pneumonia starting within 48 hours of hospital admission, follow the NICE recommendations on community-acquired pneumonia.

Offer an antibiotic(s) for adults, young people and children with hospital-acquired pneumonia. When choosing an antibiotic(s) (see tables on antibiotics for children and young people under 18 years with hospital-acquired pneumonia [See page 9] and antibiotics for adults aged 18 years and over with hospital-acquired pneumonia [See page 16]), take account of:

- the severity of symptoms or signs (at the time of publication [September 2019], no validated severity assessment tools are available for hospital-acquired pneumonia, and severity of symptoms or signs should be based on clinical judgement)
- the number of days in hospital before onset of symptoms
- the risk of developing complications, for example if the person has a relevant comorbidity such as severe lung disease or immunosuppression
- local hospital and ward-based antimicrobial resistance data
- recent antibiotic use
- recent microbiological results, including colonisation with multidrug-resistant bacteria
- recent contact with a health or social care setting before current admission
- the risk of adverse effects with broad-spectrum antibiotics, such as *Clostridium difficile* infection.

Consider following the NICE recommendations on community-acquired pneumonia for choice of antibiotic for adults, young people and children with symptoms or signs of pneumonia starting

within days 3 to 5 of hospital admission who are not at higher risk of resistance.

Start antibiotic treatment as soon as possible after establishing a diagnosis of hospital-acquired pneumonia, and certainly within 4 hours (within 1 hour if the person has suspected sepsis and meets any of the high risk criteria for this – see the NICE Pathway on sepsis).

Give oral antibiotics first line if the person can take oral medicines, and the severity of their condition does not require intravenous antibiotics.

If intravenous antibiotics are given, review by 48 hours and consider switching to oral antibiotics if possible.

Send a sample (for example, sputum sample, nasopharyngeal swab or tracheal aspirate) for microbiological testing.

NICE has produced a visual summary on antimicrobial prescribing for hospital-acquired pneumonia.

NICE has published evidence summaries on:

- antimicrobial prescribing: Ceftazidime/avibactam
- hospital-acquired pneumonia caused by methicillin-resistant Staphylococcus aureus: telavancin.

Reassessment and specialist advice

When microbiological results are available:

- review the choice of antibiotic(s) **and**
- change the antibiotic(s) according to results, using a narrower-spectrum antibiotic, if appropriate.

Reassess adults, young people and children with hospital-acquired pneumonia if symptoms do not improve as expected or worsen rapidly or significantly.

Seek specialist advice from a microbiologist for adults, young people and children with hospital-acquired pneumonia if they have:

- symptoms that are not improving as expected with antibiotics **or**
- multidrug-resistant bacteria.

Follow the NICE recommendations on care of dying adults in the last days of life when caring

for adults with hospital-acquired pneumonia who are approaching their end of life.

See what NICE says on acutely ill patients in hospital and prevention and control of healthcare-associated infections.

Rationale

See the NICE guideline to find out why we made these recommendations.

4 Severe acute respiratory failure

NICE has published interventional procedures guidance on the following procedures with **special arrangements** for consent, audit and clinical governance:

- extracorporeal membrane carbon dioxide removal for acute respiratory failure
- extracorporeal membrane oxygenation for severe acute respiratory failure in adults.

5 Tests in primary care

For people presenting with symptoms of lower respiratory tract infection in primary care, consider a point of care C-reactive protein test if after clinical assessment a diagnosis of pneumonia has not been made and it is not clear whether antibiotics should be prescribed. Use the results of the C-reactive protein test to guide antibiotic prescribing in people without a clinical diagnosis of pneumonia as follows:

- Do not routinely offer antibiotic therapy if the C-reactive protein concentration is less than 20 mg/litre.
- Consider a delayed antibiotic prescription (a prescription for use at a later date if symptoms worsen) if the C-reactive protein concentration is between 20 mg/litre and 100 mg/litre.
- Offer antibiotic therapy if the C-reactive protein concentration is greater than 100 mg/litre.

NICE has published medtech innovation briefings on:

- FebriDx for C-reactive protein and Myxovirus resistance protein A testing in primary care
- Alere Afinion CRP for C-reactive protein testing in primary care
- QuikRead go for C-reactive protein testing in primary care.

See what NICE says on self-limiting respiratory tract and ear infections – antibiotic prescribing.

6 Antibiotic treatment for community-acquired pneumonia in children and young people

Please note that the recommendations below apply to children and young people aged 72 hours and over.

Offer an antibiotic(s) for children and young people with community-acquired pneumonia. When choosing an antibiotic (see the table on antibiotics for children and young people under 18 years with community-acquired pneumonia [See page 12]), take account of:

- the severity of symptoms or signs for children and young people, based on clinical judgement (at the time of publication [September 2019], no validated severity assessment tools are available for children and young people with community-acquired pneumonia, and severity of symptoms or signs should be based on clinical judgement)
- the risk of developing complications, for example if the person has a relevant comorbidity such as severe lung disease or immunosuppression
- local antimicrobial resistance and surveillance data (such as flu and *Mycoplasma pneumoniae* infection rates)
- recent antibiotic use
- recent microbiological results, including colonisation with multidrug-resistant bacteria.

Start antibiotic treatment as soon as possible after establishing a diagnosis of community-acquired pneumonia, and certainly within 4 hours (within 1 hour if the person has suspected sepsis and meets any of the high risk criteria for this – see the NICE Pathway on sepsis).

Give oral antibiotics first line if the person can take oral medicines, and the severity of their condition does not require intravenous antibiotics.

If intravenous antibiotics are given, review by 48 hours and consider switching to oral antibiotics if possible.

For children and young people in hospital with community-acquired pneumonia, and severe symptoms or signs or a comorbidity, consider sending a sample (for example, sputum sample) for microbiological testing.

NICE has produced a visual summary on antimicrobial prescribing for community-acquired pneumonia.

Advice

Give advice to adults, young people and children with community-acquired pneumonia about:

- possible adverse effects of the antibiotic(s)
- how long symptoms are likely to last (see also providing information)
- seeking medical help (if the person is receiving treatment in the community) if:
  - symptoms worsen rapidly or significantly **or**
  - symptoms do not start to improve within 3 days **or**
  - the person becomes systemically very unwell.

NICE has written information for the public on antimicrobial prescribing for community-acquired pneumonia.

Reassessment

Reassess adults, young people and children with community-acquired pneumonia if symptoms or signs do not improve as expected or worsen rapidly or significantly.

When reassessing adults, young people and children with community-acquired pneumonia, be aware of possible non-bacterial causes, such as flu.

If a sample has been sent for microbiological testing:

- review the choice of antibiotic(s) when results are available **and**
- consider changing the antibiotic(s) according to results, using a narrower-spectrum antibiotic, if appropriate.

Send a sample (for example, a sputum sample) for microbiological testing if symptoms or signs have not improved following antibiotic treatment, and this has not been done already.

Referral and seeking specialist advice

Consider referring children and young people with community-acquired pneumonia to hospital, or seek specialist paediatric advice on further investigation and management.

Rationale

See the NICE guideline to find out why we made these recommendations.

7 Community-acquired pneumonia in adults

No additional information

8 Assessment

See Pneumonia / Assessment of community-acquired pneumonia in adults

9 Management

See Pneumonia / Management of community-acquired pneumonia in adults

10 Service organisation

Put in place processes to allow diagnosis (including X-rays) and treatment of community-acquired pneumonia within 4 hours of presentation to hospital.

Quality standards

The following quality statements are relevant to this part of the interactive flowchart.

3. Chest X-ray and diagnosis within 4 hours of hospital presentation

5. Antibiotic therapy within 4 hours in hospital

11 NICE Pathway on antimicrobial stewardship

See Antimicrobial stewardship

12 See what NICE says on ensuring adults have the best experience of NHS services

See Patient experience in adult NHS services

Antibiotics for children and young people under 18 years with hospital-acquired pneumonia

Antibiotic[1]	Dosage and course length[2]
Children under 1 month	
Antibiotic choice based on local resistance data and specialist microbiological advice	
Children aged 1 month and over	
First-choice oral antibiotic if non-severe symptoms or signs and not at higher risk of resistance[3] (guided by microbiological results when available)	
Co-amoxiclav	1 month to 11 months, 0.5 ml/kg of 125/31 suspension 3 times a day for 5 days then review[4] 1 year to 5 years, 10 ml of 125/31 suspension[5] 3 times a day or 0.5 ml/kg of 125/31 suspension 3 times a day for 5 days then review[4] 6 years to 11 years, 10 ml of 250/62 suspension 3 times a day or 0.3 ml/kg of 250/62 suspension 3 times a day for 5 days then review[4] 12 years to 17 years, 500/125 mg 3 times a day for 5 days then review[4]
Alternative oral antibiotics if non-severe symptoms or signs and not at higher risk of resistance[3], for penicillin allergy or if co-amoxiclav unsuitable	
Clarithromycin	1 month to 11 years: Under 8 kg, 7.5 mg/kg twice a day for 5 days then review[4]

	8 kg to 11 kg, 62.5 mg twice a day for 5 days then review[4] 12 kg to 19 kg, 125 mg twice a day for 5 days then review[4] 20 kg to 29 kg, 187.5 mg twice a day for 5 days then review[4] 30 kg to 40 kg, 250 mg twice a day for 5 days then review[4] 12 years to 17 years, 500 mg twice a day for 5 days then review[4]
Other options may be suitable based on specialist microbiological advice and local resistance data.	
First-choice intravenous antibiotics if severe symptoms or signs (for example, symptoms or signs of sepsis) or at higher risk of resistance[3]. Review IV **antibiotics by 48 hours and consider switching to oral antibiotics as above for a total of 5 days then review[4]**	
Antibiotic choice should be based on specialist microbiological advice and local resistance data. Options include:	
Piperacillin with tazobactam	1 month to 11 years, 90 mg/kg 3 or 4 times a day (maximum 4.5 g per dose 4 times a day) 12 years to 17 years, 4.5 g 3 times a day (increased to 4.5 g 4 times a day if severe infection)
Ceftazidime	1 month to 17 years, 25 mg/kg 3 times a day (50 mg/kg 3 times a day if severe infection; maximum 6 g per day)
Ceftriaxone	1 month to 11 years (up to 50 kg), 50 mg/kg to 80 mg/kg once a day (use dose at higher end of range if severe infection; maximum 4 g per

	day) 9 years to 11 years (50 kg and above), 2 g once a day 12 years to 17 years, 2 g once a day
Antibiotics to be added if suspected or confirmed MRSA **infection (dual therapy with the IV antibiotic chosen from the list above)**	
Teicoplanin[6,7]	1 month, initially 16 mg/kg for 1 dose, then 8 mg/kg once daily, subsequent dose to be given 24 hours after initial dose (doses given by IV infusion) 2 months to 11 years, initially 10 mg/kg every 12 hours IV for 3 doses, then 6 mg/kg to 10 mg/kg once daily IV 12 years to 17 years, initially 6 mg/kg every 12 hours IV for 3 doses, then 6 mg/kg once daily IV
Vancomycin[6,7]	1 month to 11 years, 10 mg/kg to 15 mg/kg 4 times a day IV, adjusted according to serum-vancomycin concentration 12 years to 17 years, 15 mg/kg to 20 mg/kg 2 or 3 times a day IV, adjusted according to serum-vancomycin concentration (a loading dose of 25 mg/kg to 30 mg/kg can be used in seriously ill people). Maximum 2 g per dose
Linezolid[6,8] (if vancomycin cannot be used; specialist advice only)	3 months to 11 years, 10 mg/kg 3 times a day orally or IV (maximum 600 mg per dose) 12 years to 17 years, 600 mg twice a day orally or IV
[1] See BNF for children for appropriate use and dosing in specific populations, for example, hepatic impairment, renal impairment, pregnancy and breastfeeding, and administering	

intravenous (or, where appropriate, intramuscular) antibiotics.

[2] Oral doses are for immediate-release medicines. The age bands apply to children of average size and, in practice, the prescriber will use the age bands in conjunction with other factors such as the severity of the condition being treated and the child's size in relation to the average size of children of the same age.

[3] Higher risk of resistance includes symptoms or signs starting more than 5 days after hospital admission, relevant comorbidity such as severe lung disease or immunosuppression, recent use of broad-spectrum antibiotics, colonisation with multidrug-resistant bacteria, and recent contact with a health or social care setting before current admission.

[4] Review treatment after a total of 5 days of antibiotics and consider stopping antibiotics if clinically stable.

[5] Or 5 ml of 250/62 suspension.

[6] See BNF for children for information on monitoring of patient parameters.

[7] See BNF for children for information on therapeutic drug monitoring.

[8] Not licensed in children and young people under 18 years, so use would be off label. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented. See the General Medical Council's Good practice in prescribing and managing medicines and devices for further information.

Antibiotics for children and young people under 18 years with community-acquired pneumonia

Antibiotic[1]	Dosage and course length[2]
Children under 1 month	

Refer to paediatric specialist.	
Children aged 1 month and over	
First-choice oral antibiotic if non-severe symptoms or signs (based on clinical judgement)[3]	
Amoxicillin	1 to 11 months, 125 mg 3 times a day for 5 days[4] 1 to 4 years, 250 mg 3 times a day for 5 days[4] 5 to 17 years, 500 mg 3 times a day for 5 days[4] (higher doses can be used for all ages – see BNF for children)
Alternative oral antibiotics if non-severe symptoms or signs (based on clinical judgement), for penicillin allergy or if amoxicillin unsuitable (for example, atypical pathogens suspected[5])[3]	
Clarithromycin	1 month to 11 years: Under 8 kg, 7.5 mg/kg twice a day for 5 days[4] 8 to 11 kg, 62.5 mg twice a day for 5 days[4] 12 to 19 kg, 125 mg twice a day for 5 days[4] 20 to 29 kg, 187.5 mg twice a day for 5 days[4] 30 to 40 kg, 250 mg twice a day for 5 days[4] 12 to 17 years:

	250 mg to 500 mg twice a day for 5 days[4]
Erythromycin (in pregnancy)	8 to 17 years, 250 mg to 500 mg 4 times a day for 5 days[4]
Doxycycline[6]	12 to 17 years, 200 mg on first day, then 100 mg once a day for 4 days (5-day course in total)[4]
First-choice antibiotic(s) if severe symptoms or signs **(based on clinical judgement); guided by microbiological results when available[3]**	
Co-amoxiclav	Oral doses: 1 to 11 months, 0.5 ml/kg of 125/31 suspension 3 times a day for 5 days[4] 1 to 5 years, 10 ml of 125/31 suspension 3 times a day or 0.5 ml/kg of 125/31 suspension 3 times a day for 5 days[4,7] 6 to 11 years, 10 ml of 250/62 suspension 3 times a day or 0.3 ml/kg of 250/62 suspension 3 times a day for 5 days[4] 12 to 17 years, 500/125 mg 3 times a day for 5 days[4] IV doses[8]: 1 to 2 months, 30 mg/kg 2 times a day[4] 3 months to 17 years, 30 mg/kg 3 times a day (maximum 1.2 g per dose 3 times a day) [4]
with (if atypical pathogen suspected[5]):	

Clarithromycin **or**	Oral doses: see above for clarithromycin; for 5 days[4] IV doses[8]: 1 month to 11 years, 7.5 mg/kg twice a day (maximum 500 mg per dose)[4] 12 to 17 years, 500 mg twice a day[4]
Erythromycin (in pregnancy)	See oral dose above for erythromycin; for 5 days[4]
Alternative antibiotics if severe symptoms or signs (based on clinical judgement), for penicillin allergy; guided by microbiological results when available[3]	
Consult local microbiologist	

[1] See BNF for children for appropriate use and dosing in specific populations, for example, hepatic impairment, renal impairment, pregnancy and breastfeeding, and administering intravenous (or, where appropriate, intramuscular) antibiotics.

[2] Oral doses are for immediate-release medicines. The age bands apply to children of average size and, in practice, the prescriber will use the age bands in conjunction with other factors such as the severity of the condition being treated and the child's size in relation to the average size of children of the same age.

[3] Give oral antibiotics first line if the person can take oral medicines, and the severity of their condition does not require intravenous antibiotics.

[4] Stop antibiotic treatment after 5 days unless microbiological results suggest a longer course length is needed or the person is not clinically stable.

[5] *Mycoplasma pneumoniae* infection occurs in outbreaks approximately every 4 years and is more common in school-aged children.

[6] See BNF for children for use of doxycycline in children under 12.

[7] Or 5 ml of 250/62 suspension.

[8] Review intravenous antibiotics by 48 hours and consider switching to oral antibiotics if possible.

Antibiotics for adults aged 18 years and over with hospital-acquired pneumonia

Antibiotic[1]	Dosage and course length[2]
First-choice oral antibiotic for non-severe symptoms or signs and not at higher risk of resistance[3] (guided by microbiological results when available)	
Co-amoxiclav	500/125 mg 3 times a day for 5 days then review[4]
Alternative oral antibiotics for non-severe symptoms or signs and not at higher risk of resistance[3], if penicillin allergy or if co-amoxiclav unsuitable	
Antibiotic choice should be based on specialist microbiological advice and local resistance data. Options include:	
Doxycycline	200 mg on first day, then 100 mg once a day for 4 days (5-day course) then review[4]
Cefalexin (caution in penicillin allergy)	500 mg twice or 3 times a day (can be increased to 1 g to 1.5 g 3 or 4 times a day) for 5 days then review[4]

Co-trimoxazole[5,6]	960 mg twice a day for 5 days then review[4]
Levofloxacin[6] (only if switching from IV levofloxacin with specialist advice; consider safety issues[7])	500 mg once or twice a day for 5 days then review[4]
First-choice intravenous antibiotics if severe symptoms or signs (for example, symptoms or signs of sepsis) or at higher risk of resistance[3]. Review IV antibiotics by 48 hours and consider switching to oral antibiotics as above for a total of 5 days then review[4]	
Antibiotic choice should be based on specialist microbiological advice and local resistance data. Options include:	
Piperacillin with tazobactam	4.5 g 3 times a day (increased to 4.5 g 4 times a day if severe infection)
Ceftazidime	2 g 3 times a day
Ceftriaxone	2 g once a day
Cefuroxime	750 mg 3 or 4 times a day (increased to 1.5 g 3 or 4 times a day if severe infection)
Meropenem	0.5 g to 1 g 3 times a day
Ceftazidime with avibactam	2/0.5 g 3 times a day
Levofloxacin[6] (consider	500 mg once or twice a day (use higher dosage if severe infection)

safety issues[7])	
Antibiotics to be added if suspected or confirmed MRSA **infection (dual therapy with an IV antibiotic listed above)**	
Vancomycin[5,8]	15 mg/kg to 20 mg/kg 2 or 3 times a day IV, adjusted according to serum-vancomycin concentration (a loading dose of 25 mg/kg to 30 mg/kg can be used in seriously ill people); maximum 2 g per dose
Teicoplanin[5,8]	Initially 6 mg/kg every 12 hours for 3 doses, then 6 mg/kg once a day
Linezolid[5] (if vancomycin cannot be used; specialist advice only)	600 mg twice a day orally or IV

[1] See BNF for appropriate use and dosing in specific populations, for example, hepatic impairment, renal impairment, pregnancy and breastfeeding, and administering intravenous (or, where appropriate, intramuscular) antibiotics.

[2] Oral doses are for immediate-release medicines.

[3] Higher risk of resistance includes symptoms or signs starting more than 5 days after hospital admission, relevant comorbidity such as severe lung disease or immunosuppression, recent use of broad-spectrum antibiotics, colonisation with multidrug-resistant bacteria, and recent contact with a health or social care setting before current admission.

[4] Review treatment after a total of 5 days of antibiotics and consider stopping antibiotics if clinically stable.

[5] See BNF for information on monitoring of patient parameters.

[6] Not licensed for hospital-acquired pneumonia, so use would be off label. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented. See the General Medical Council's Good practice in prescribing and managing medicines and devices for further information.

[7] See Medicines and Healthcare products Regulatory Agency (MHRA) advice for restrictions and precautions for using fluoroquinolone antibiotics because of very rare reports of disabling and potentially long-lasting or irreversible side effects affecting musculoskeletal and nervous systems. Warnings include: stopping treatment at first signs of a serious adverse reaction (such as tendonitis), prescribing with special caution for people over 60 years and avoiding coadministration with a corticosteroid (March 2019).

[8] See BNF for information on therapeutic drug monitoring.

Glossary

Clinical diagnosis of community-acquired pneumonia

(diagnosis based on symptoms and signs of lower respiratory tract infection in a patient who, in the opinion of the GP and in the absence of a chest X-ray, is likely to have community-acquired pneumonia; this might be because of the presence of focal chest signs, illness severity or other features)

Community-acquired pneumonia

(pneumonia that is acquired outside hospital: pneumonia that develops in a nursing home resident is included in this definition; when managed in hospital the diagnosis is usually confirmed by chest X-ray)

Higher risk of resistance

(includes symptoms or signs of pneumonia starting more than 5 days after hospital admission, relevant comorbidity such as severe lung disease or immunosuppression, recent use of broad-spectrum antibiotics, colonisation with multidrug-resistant bacteria, and recent contact with health and social care settings before current admission)

Hospital-acquired pneumonia

(pneumonia that develops 48 hours or more after hospital admission and that was not incubating at hospital admission: when managed in hospital, the diagnosis is usually confirmed by chest X-ray; for the purpose of this guidance, pneumonia that develops in hospital after intubation (ventilator-associated pneumonia) is excluded from this definition)

IV

(intravenous)

Lower respiratory tract infection

(an acute illness (present for 21 days or less), usually with cough as the main symptom, and with at least 1 other lower respiratory tract symptom (such as fever, sputum production, breathlessness, wheeze or chest discomfort or pain) and no alternative explanation (such as sinusitis or asthma); pneumonia, acute bronchitis and exacerbation of chronic obstructive airways disease are included in this definition)

Mortality risk

(the percentage likelihood of death occurring in a patient in the next 30 days)

MRSA

(methicillin-resistant *Staphylococcus aureus*)

Off label

(a medicine with an existing UK marketing authorisation that is used outside the terms of its marketing authorisation, for example, by indication, dose, route or patient population)

severe symptoms or signs

(includes difficulty breathing, oxygen saturation < 90%, raised heart rate, grunting, very severe chest indrawing, inability to breastfeed or drink, lethargy and a reduced level of consciousness)

Sources

Pneumonia (hospital-acquired): antimicrobial prescribing (2019) NICE guideline NG139

Pneumonia (community-acquired): antimicrobial prescribing (2019) NICE guideline NG138

Pneumonia in adults: diagnosis and management (2014 updated 2019) NICE guideline CG191

Your responsibility

Guidelines

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Technology appraisals

The recommendations in this interactive flowchart represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, health professionals are expected to take these recommendations fully into account, alongside the individual needs, preferences and values of their patients. The application of the recommendations in this interactive flowchart is at the discretion of health professionals and their individual patients and do not override the responsibility of healthcare professionals to

make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian.

Commissioners and/or providers have a responsibility to provide the funding required to enable the recommendations to be applied when individual health professionals and their patients wish to use it, in accordance with the NHS Constitution. They should do so in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Medical technologies guidance, diagnostics guidance and interventional procedures guidance

The recommendations in this interactive flowchart represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, healthcare professionals are expected to take these recommendations fully into account. However, the interactive flowchart does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

Commissioners and/or providers have a responsibility to implement the recommendations, in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity, and foster good relations. Nothing in this interactive flowchart should be interpreted in a way that would be inconsistent with compliance with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.